

# Water and Sewer Rate Study

City of Rockville Mayor & Council Meeting

December 11, 2017

# Agenda

- 1** Introduction and Background
- 2** Multi-Year Financial Management Plans
- 3** Multi-Family Rate Structure Analysis
- 4** Capital Contribution Charges

# 1 Introduction and Background

# Introduction: Stantec

## 30+ Public-Sector Utility Financial Management Consultants

## National Practice

- 300+ years of experience
- 1,500+ studies
- Industry leadership in water resources

## Innovators in interactive modeling

**BURTON & ASSOCIATES**

now  
part of



**MWH®**

- ✓ Rich history in the global water industry dating back to 1820
- ✓ After several mergers and acquisitions over 150+ years, Montgomery Watson and Harza Engineering merged to form MWH

**HAWKSLEY™**  
CONSULTING

**BURTON & ASSOCIATES**

- ✓ In early 2015, MWH rebranded its Management Consulting practice as Hawksley Consulting
- ✓ In late 2015, Hawksley Consulting merged with Burton & Associates, forming one of the nations largest utility rate consulting practices



**Stantec**

- ✓ In 2016, Stantec acquired MWH, uniting approximately 22,000 employees working in over 400 locations across six continents
- ✓ Hawksley Consulting becomes the Financial Services Group of Stantec, comprised of over 35 professional rate consultants

# Background

## Comprehensive rate study completed in FY 2014

- ▶ Developed plan to address negative fund balances in Water and Sewer Funds by FY 2021
- ▶ City adopted three year rate plan FY 2016, 2017 and 2018

| Fiscal Year<br>Ending | Water System |        |         | Sewer System |        |         |
|-----------------------|--------------|--------|---------|--------------|--------|---------|
|                       | RTS          | Volume | Overall | RTS          | Volume | Overall |
| 2015                  | 20.00%       | 8.00%  | 8.82%   | 20.00%       | 6.00%  | 7.01%   |
| 2016                  | 10.00%       | 3.00%  | 3.53%   | 20.00%       | 12.00% | 12.66%  |
| 2017                  | 4.50%        | 3.50%  | 3.58%   | 13.25%       | 12.25% | 12.34%  |
| 2018                  | 4.50%        | 3.50%  | 3.58%   | 13.25%       | 12.25% | 12.34%  |
| 2019                  | 4.50%        | 3.50%  | 3.58%   | 13.25%       | 12.25% | 12.34%  |
| 2020                  | 4.50%        | 3.50%  | 3.59%   | 13.25%       | 12.25% | 12.35%  |
| 2021                  | 4.50%        | 3.50%  | 3.59%   | 13.25%       | 12.25% | 12.35%  |
| 2022                  | 4.50%        | 2.00%  | 2.22%   | 5.00%        | 1.00%  | 1.42%   |
| 2023                  | 4.50%        | 2.00%  | 2.22%   | 5.00%        | 1.00%  | 1.43%   |
| 2024                  | 4.50%        | 2.00%  | 2.23%   | 5.00%        | 1.00%  | 1.45%   |

*FY 2015 increases were developed and implemented by the City*

## Continued monitoring of financial performance of utilities

- ▶ City engaged Stantec in FY 2016 and FY 2017 to evaluate ongoing performance of utilities
- ▶ Updates have identified key differences from original forecast

# Scope of the Rate Study

## 1. Develop Multi-Year Financial Management Plans for Water and Sewer Fund

- ▶ Satisfy annual operating and capital cost requirements
- ▶ Ensure compliance with the terms of existing and any new debt
- ▶ Establish and maintain adequate operating reserves

## 2. Multi-Family Rate Structure Analysis

## 3. Evaluation of Capital Contribution Charges

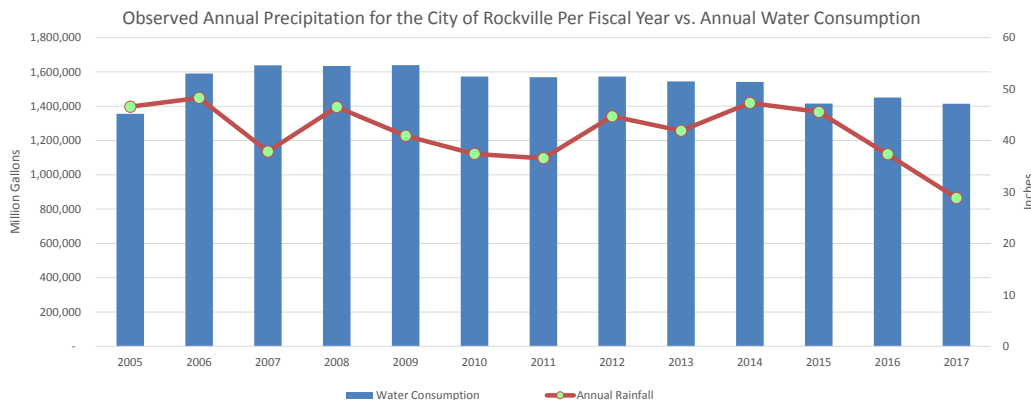
# Key Differences Since Last Study

## Wastewater costs at Blue Plains

- ▶ FY 2014 Estimate of Capital FY15 – FY 18: \$12.6M, Actual \$15.6M
- ▶ FY 2014 Estimate of O&M FY15 – FY 18: \$12.4M, Actual \$14.7M
- ▶ Total **Additional Blue Plains** costs of **\$5.3M**

## Adjustments in administrative charges

## Declines in metered water volumes - Direct impact on Water/Sewer Sales (16% decline since 2009)



# 2 Multi-Year Financial Management Plans



# Water Utility Financial Management Plan

SAVE CALC ROLL

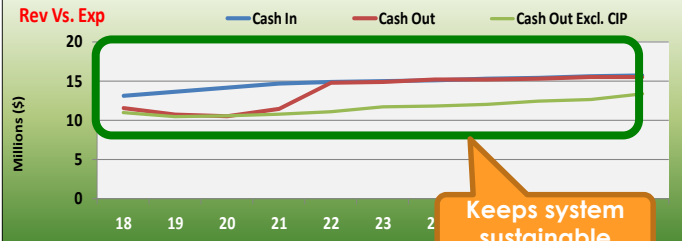
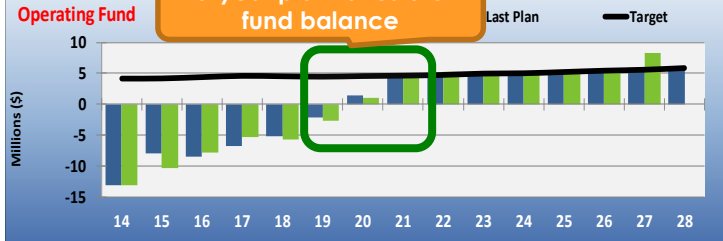
Moderate plan of increases to eliminate deficit

## FINANCIAL MANAGEMENT SYSTEM (FAMS) SUMMARY WATER FUND

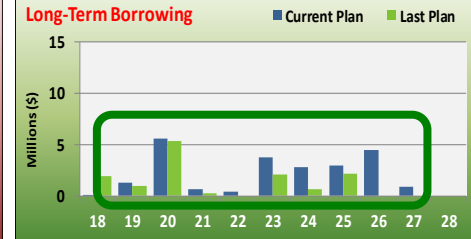
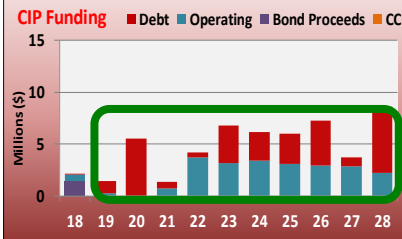
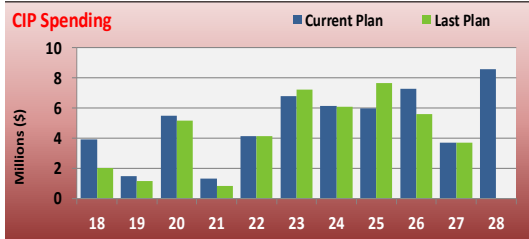
Leads to inflationary increases in the future

|                             | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cumulative Change |        |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|--------|
| Combined Utility Rate Plan  | 0.00%   | 5.16%   | 5.16%   | 5.17%   | 1.74%   | 1.75%   | 1.76%   | 1.77%   | 1.77%   | 1.78%   | 1.79%   | 21.53%            | 34.32% |
| <i>Last Plan</i>            | 3.72%   | 6.22%   | 6.08%   | 6.09%   | 4.20%   | 4.21%   | 4.21%   | 4.22%   | 4.20%   | 4.20%   | 0.00%   | 29.81%            | 53.08% |
| Rate Covenant               | 1.99    | 2.31    | 2.43    | 2.59    | 2.57    | 2.44    | 2.47    | 2.33    | 2.23    | 2.14    | 1.97    | PS FY19 ►         | 99.0%  |
| <i>Last Plan</i>            | 1.82    | 1.93    | 2.31    | 2.49    | 2.64    | 2.62    | 2.62    | 2.87    | 3.00    | 3.34    |         | OMV FY19 ►        | 95.0%  |
| CIP \$ Redistribution ►     | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | OMF FY19 ►        | 90.0%  |
| CIP Execution % ►           | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | Elasticity        | 0.0%   |
| Operating Reserve Mo ►      | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       |                   |        |
| Average Bill (15,000 gals.) | \$93.63 | 98.55   | 103.85  | 109.38  | 111.57  | 113.79  | 116.05  | 118.35  | 120.68  | 123.20  | 125.76  | Check             | \$ -   |
|                             |         |         | 105.50  | 111.93  | 116.63  | 121.54  | 126.66  | 132.00  | 137.55  | 143.33  |         |                   |        |

3-year plan to restore fund balance

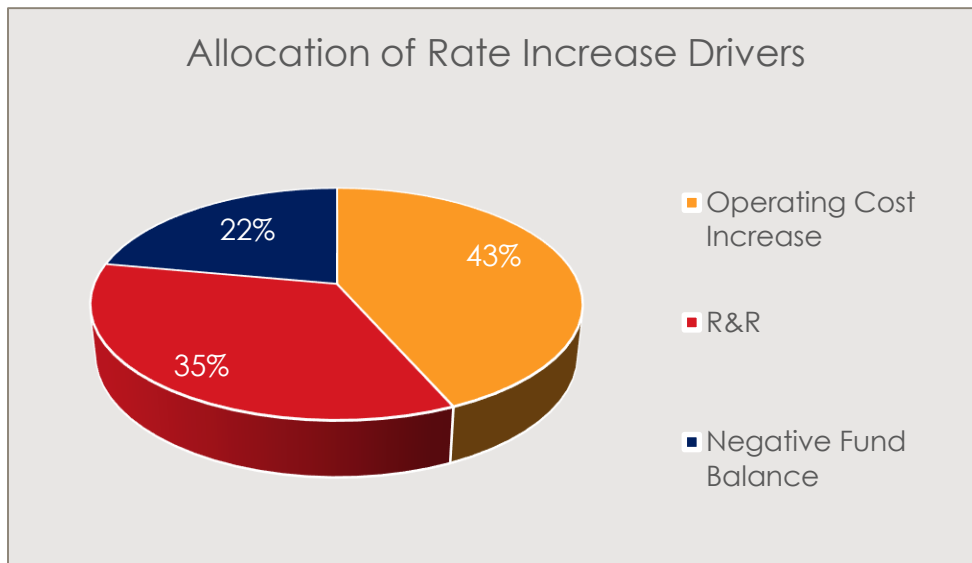


Keeps system sustainable



# Water System Financial Plan

## Allocation of Rate Increases



# Sewer Utility Financial Management Plan

SAVE CALC ROLL

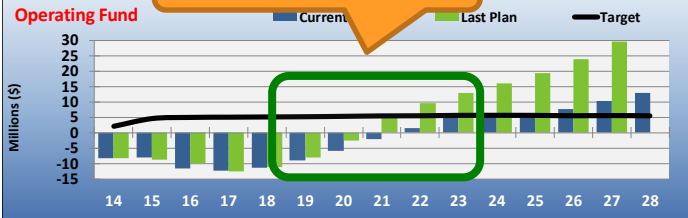
Required plan of increases to eliminate deficit

## MANAGEMENT SYSTEM (FAMS) SUMMARY SEWER FUND

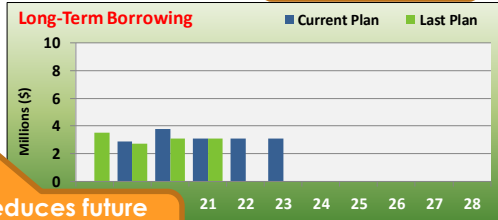
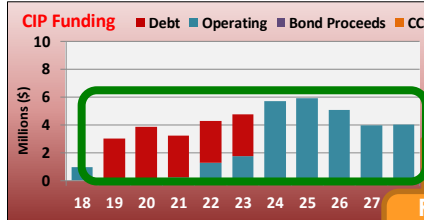
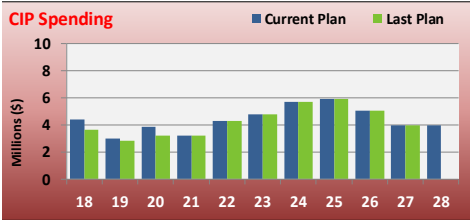
Leads to inflationary increases in the future

|                            | FY 2018 | FY 2019 | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cumulative Change |        |
|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------|--------|
| Combined Utility Rate Plan | 0.00%   | 6.80%   | 6.81%   | 6.82%   | 8.85%   | 8.85%   | 1.10%   | 1.11%   | 1.11%   | 1.11%   | 1.11%   | 44.75%            | 53.10% |
| Last Plan*                 | 12.73%  | 17.19%  | 17.19%  | 17.20%  | 1.40%   | 1.42%   | 1.44%   | 1.46%   | 1.48%   | 1.50%   | 0.00%   | 65.99%            | 76.60% |
| Rate Covenant              | 1.75    | 1.50    | 2.00    | 2.00    | 2.50    | 2.51    | 2.02    | 2.13    | 2.51    | 3.00    | 3.20    | PS FY19 ▶         | 99.0%  |
| Last Plan                  | 1.72    | 2.06    | 2.52    | 3.02    | 3.15    | 3.24    | 3.42    | 3.61    | 4.00    | 4.10    | 4.38    | OMV FY19 ▶        | 100.0% |
| CIP \$ Redistribution ▶    | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | \$0.00  | OMF FY19 ▶        | 95.0%  |
| CIP Execution % ▶          | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | 100%    | MF Structure      | Off    |
| Operating Reserve Mo ▶     | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | 6       | Elasticity        | 0.0%   |
| Average Bill (15           |         |         |         |         |         |         |         |         |         |         |         | Check             | \$ -   |
|                            |         |         |         |         |         |         |         |         |         |         |         |                   |        |

5-year plan to restore fund balance



Path to sustainability

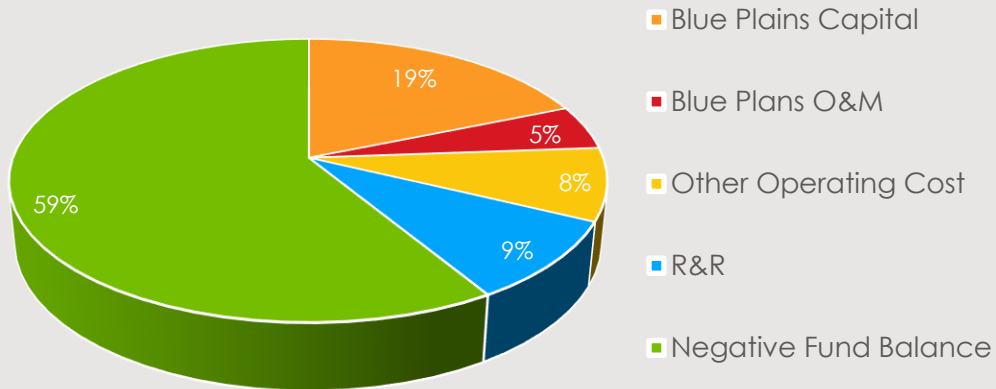


Reduces future borrowing needs

# Sewer System Financial Plan

## Allocation of Rate Increases

Allocation of Rate Increase Drivers



# Proposed Annual Rate Increases

We recommend that the City adopt a three year plan of rate adjustments for FY 2019, 2020 and 2021

| Fiscal Year<br>Ending | Water System |        |         | Sewer System |        |         |
|-----------------------|--------------|--------|---------|--------------|--------|---------|
|                       | RTS          | Volume | Overall | RTS          | Volume | Overall |
| 2019                  | 6.75%        | 5.00%  | 5.16%   | 9.75%        | 6.50%  | 6.80%   |
| 2020                  | 6.75%        | 5.00%  | 5.16%   | 9.75%        | 6.50%  | 6.81%   |
| 2021                  | 6.75%        | 5.00%  | 5.17%   | 9.75%        | 6.50%  | 6.82%   |
| 2022                  | 4.00%        | 1.50%  | 1.74%   | 9.75%        | 8.75%  | 8.85%   |
| 2023                  | 4.00%        | 1.50%  | 1.75%   | 9.75%        | 8.75%  | 8.85%   |
| 2024                  | 4.00%        | 1.50%  | 1.76%   | 2.00%        | 1.00%  | 1.10%   |
| 2025                  | 4.00%        | 1.50%  | 1.77%   | 2.00%        | 1.00%  | 1.11%   |
| 2026                  | 4.00%        | 1.50%  | 1.77%   | 2.00%        | 1.00%  | 1.11%   |
| 2027                  | 4.00%        | 1.50%  | 1.78%   | 2.00%        | 1.00%  | 1.11%   |
| 2028                  | 4.00%        | 1.50%  | 1.79%   | 2.00%        | 1.00%  | 1.11%   |

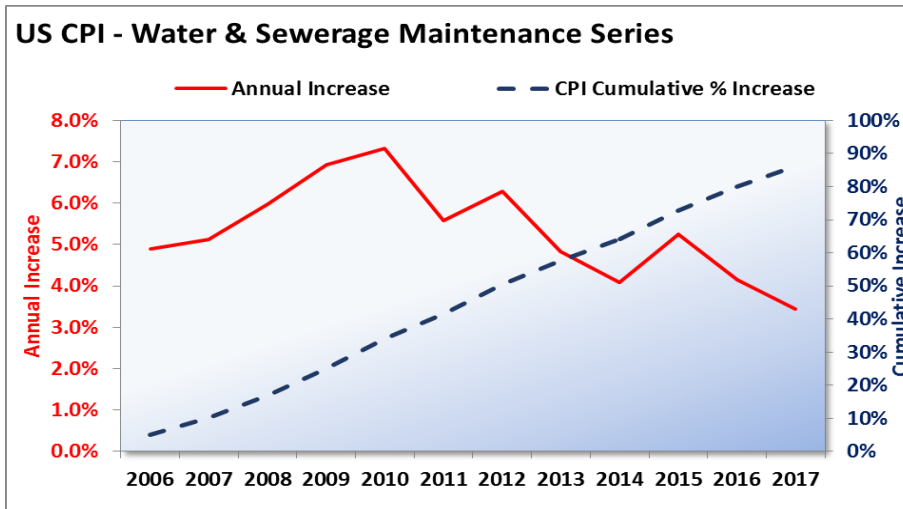
Plan will allow Water Fund to meet reserve target by FY 2021 and Sewer Fund by FY 2023

# Impact to Typical Quarterly Bill

## (<sup>3</sup>/<sub>4</sub>" Meter @ 15,000 gallons)

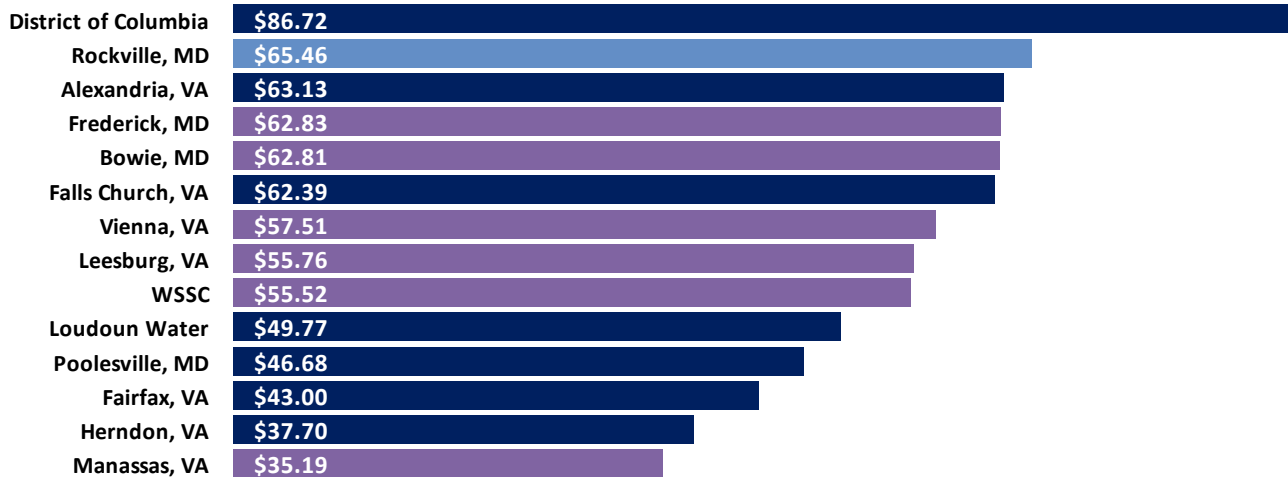
|                  | FY 2019  | FY 2020  | FY 2021  | FY 2022  | FY 2023  | FY 2024  | FY 2025  | FY 2026  | FY 2027  | FY 2028  |
|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sewer            | \$168.74 | \$180.37 | \$192.80 | \$209.95 | \$228.54 | \$231.09 | \$233.66 | \$236.24 | \$238.98 | \$241.73 |
| Water            | \$98.55  | \$103.85 | \$109.38 | \$111.57 | \$113.79 | \$116.05 | \$118.35 | \$120.68 | \$123.20 | \$125.76 |
| Total Bill (Qtr) | \$267.29 | \$284.22 | \$302.18 | \$321.52 | \$342.33 | \$347.14 | \$352.01 | \$356.92 | \$362.18 | \$367.49 |
| \$ Chg. Qtr.     | \$15.77  | \$16.93  | \$17.96  | \$19.34  | \$20.81  | \$4.81   | \$4.87   | \$4.91   | \$5.26   | \$5.31   |
| % Chg.           | 6.3%     | 6.3%     | 6.3%     | 6.4%     | 6.5%     | 1.4%     | 1.4%     | 1.4%     | 1.5%     | 1.5%     |

## National Industry Trend



# FY 2017 Water & Sewer Bill Comparison: Residential Customer 5/8" meter

## Combined Water & Sewer Bill Survey at 4,000 Gallons per Month



Comparable Entities Shaded Purple  
Local Entities Shaded Blue

Bills for communities in Maryland include \$5.00 per month Bay Restoration Fund Fee (i.e. "Flush Tax") to fund improvements to wastewater treatment plants in order to primarily reduce nitrogen and phosphorus pollution into the Chesapeake Bay

# FY 2017 Water & Sewer Bill Comparison: Residential Customer 3/4" meter

## Combined Water & Sewer Bill Survey at 5,000 Gallons per Month



Comparable Entities Shaded Purple

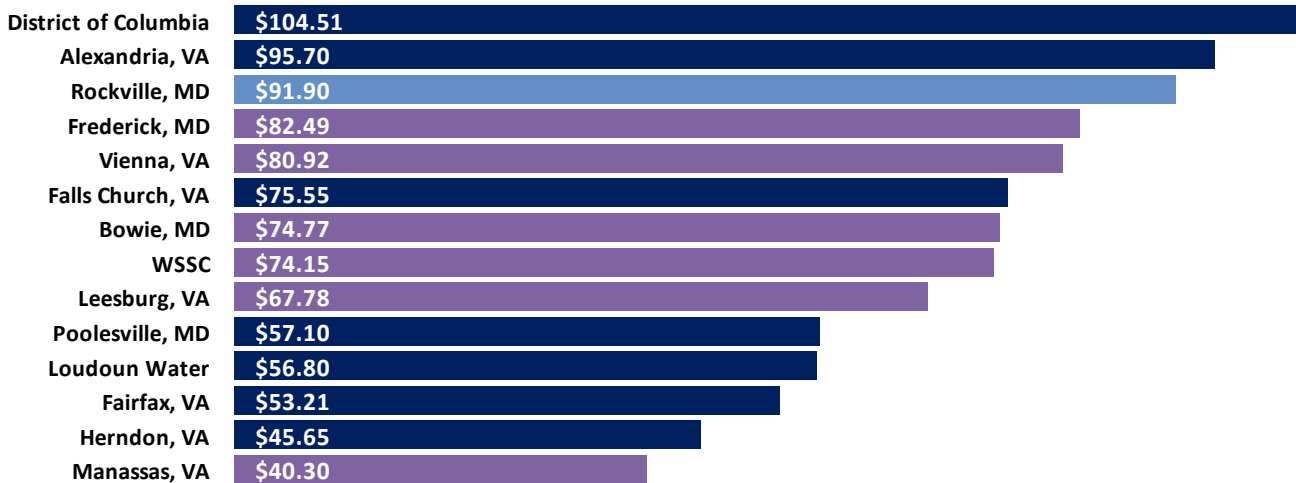
Local Entities Shaded Blue

Bills for communities in Maryland include \$5.00 per month Bay Restoration Fund Fee (i.e. "Flush Tax") to fund improvements to wastewater treatment plants in order to primarily reduce nitrogen and phosphorus pollution into the Chesapeake Bay



# FY 2017 Water & Sewer Bill Comparison: Residential Customer 1" meter

## Combined Water & Sewer Bill Survey at 5,000 Gallons per Month



Comparable Entities Shaded Purple  
Local Entities Shaded Blue

Bills for communities in Maryland include \$5.00 per month Bay Restoration Fund Fee (i.e. "Flush Tax") to fund improvements to wastewater treatment plants in order to primarily reduce nitrogen and phosphorus pollution into the Chesapeake Bay

# 3 Multi-Family Rate Structure Analysis

# Multi-Family Rate Structure

## Current rate structure:

- ▶ Multi-family buildings charged as a single customer
- ▶ Ready-to-serve charge and usage rate tiers based on size of master meter

## Alternative Rate Structures Considered:

### Alternative A

- ▶ Multi-family charged ready-to-serve charge on per unit basis
- ▶ Water rate tiers scaled based on number of units

### Alternative B

- ▶ Multi-family charged ready-to-serve charge on per unit that is 50% of base ready-to-serve charge
- ▶ Water usage rate tiers set at 50% based on number of units

# Revenues Under Current and Proposed Rate Structures

| Water                            | Current            | Alternative A      | Alternative B      |
|----------------------------------|--------------------|--------------------|--------------------|
| Ready-to-Serve Charge Revenue    | \$80,334           | \$413,813          | \$206,906          |
| Usage Charge Revenue             | \$1,558,682        | \$984,212          | \$1,017,323        |
| <b>Total</b>                     | <b>\$1,639,016</b> | <b>\$1,398,025</b> | <b>\$1,224,229</b> |
| Increase / Reduction in Revenues |                    | <b>(\$240,991)</b> | <b>(\$414,787)</b> |

| Sewer                            | Current            | Alternative A      | Alternative B      |
|----------------------------------|--------------------|--------------------|--------------------|
| Ready-to-Serve Charge Revenue    | \$88,225           | \$497,744          | \$248,872          |
| Usage Charge Revenue             | \$1,728,766        | \$1,728,766        | \$1,728,766        |
| <b>Total</b>                     | <b>\$1,816,991</b> | <b>\$2,226,510</b> | <b>\$1,977,638</b> |
| Increase / Reduction in Revenues |                    | <b>\$409,519</b>   | <b>\$160,647</b>   |

- ▶ Each alternative would result in **reduced** revenue within the Water Fund due to structure change
- ▶ Very significant bill impacts depending on size of meter and number of units (i.e. 100% to 500% increases)
- ▶ More appropriate for the City to base customer class specific rates on cost of service analysis

# 4 Capital Contribution Charge Analysis

# Summary of Capital Charge Analysis

## Background:

- ▶ One-time charge assessed to new connections or upsized meters to recover the unit cost of providing system capacity
- ▶ Used to pay for expansion-related capital costs

## Calculation method:

- ▶ Replacement cost less depreciation of existing assets and capacity of current system

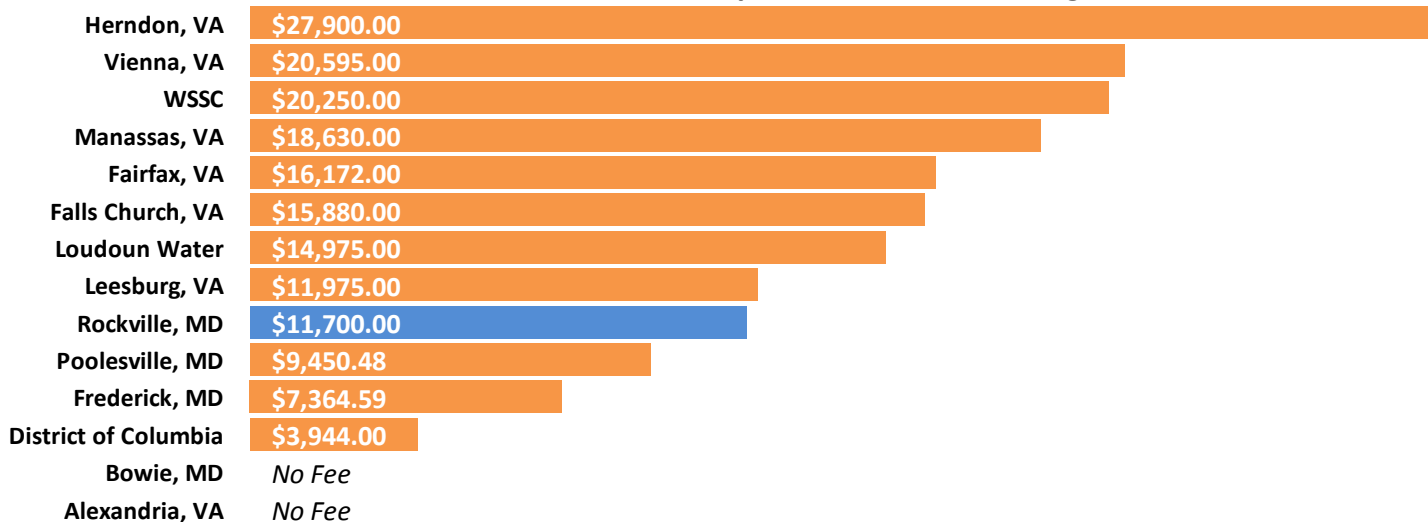
| <b>Fees per 1" Meter</b> | <b>Water</b> | <b>Sewer</b> | <b>Total</b> |
|--------------------------|--------------|--------------|--------------|
| Current                  | \$4,100      | \$7,600      | \$11,700     |
| Calculated               | \$3,800      | \$8,100      | \$11,900     |
| \$ Change                | \$(300)      | \$500        | \$200        |

## Results:

- ▶ Current capital contribution charges are set at appropriate level given current cost of providing capacity

# FY 2018 Capital Charges

## Combined Water & Sewer Capital Contribution Charges



# Summary of Recommendations

## Adopt 3-year schedule of water and sewer rate adjustments

- ▶ Plan will restore fund balances for Water Fund in 3 years and Sewer Fund in 5 years
- ▶ Modify rate adjustment plan (up or down) to ensure sustainability of funds and satisfaction of performance goals/targets

## Maintain current rate structure for multi-family customers

- ▶ Consider conducting a full cost of service analysis in the future to allow for evaluation of customer class specific rates

## Maintain current capital contribution charges

- ▶ Examine level of charges every 3 to 5 years



# Questions and Discussion